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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,296	09/24/2001	Kenji Maruyama	011267	4754

23850 7590 09/24/2003

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP  
1725 K STREET, NW  
SUITE 1000  
WASHINGTON, DC 20006

- EXAMINER -

SCHILLINGER, LAURA M

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/960,296

Applicant(s)

MARUYAMA ET AL.

Examiner

Laura M Schillinger

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

This Office Action is in response to Amendment B, Paper No.11, dated 7/14/03.

#### ***Claim Objections***

Claims 1 and 16 are objected to because of the following informalities: claims 1 and 16 contains two transitional elements which are “comprising” and “further comprising”- it is unclear where Applicant’s preamble ends and the limitations of the claims begin. For purposes of examination, the Examiner has assumed that the first term “comprising” is the proper transitional element. Applicant should implement only a single transitional element and further the addition of a colon may also assist in clarifying Applicant’s preamble. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukushima et al (‘301).

In reference to claim 1, Fukushima teaches a device comprising:

A first electrode of a metal (Fig.24 (242));

A ferroelectric film formed above the first metal (Fig.24 (243));

A second electrode of a metal formed above the ferroelectric film (Fig.24 (244)), at least one of the first electrode and second electrode being an electrode of a base metal, and

An intermediate layer of perovskite crystal formed at the boundary between the electrode of the base metal and the ferroelectric film, materials of the intermediate layer being different from materials of the first electrode, second electrode and ferroelectric film (Abs., lines: 1-5).

In reference to claim 2, Fukushima teaches wherein the perovskite is: BaTiO<sub>3</sub> (Col.28, lines: 13-16).

In reference to claim 3, Fukushima teaches wherein the intermediate layer further comprises: Sr (Col.28, lines: 13-16)

In reference to claim 4, Fukushima teaches wherein the first electrode or second electrode is metal (Col.17, lines: 35-45).

In reference to claim 5, Fukushima teaches wherein the first electrode or second is metal (Col.17, lines: 35-45).

In reference to claim 6, Fukushima teaches wherein the first or second electrode is metal (Col.17, lines: 35-45).

In reference to claim 7, Fukushima teaches wherein the metal is Ni (Col.17, lines: 35-45).

In reference to claim 8, Fukushima teaches wherein the metal is Ni (Col.17, lines: 35-45).

In reference to claim 9, Fukushima teaches wherein the metal is Ni (Col.17, lines: 35-45).

In reference to claim 10, Fukushima teaches wherein the ferroelectric material is Pb based (Col.2, lines: 5-10).

In reference to claim 11, Fukushima teaches wherein the ferroelectric material is PZT (Col.2, lines: 5-10).

In reference to claim 12, Fukushima teaches wherein the PZT film further contains Ca (Col.3, lines: 50-65 see also Col.19, lines: 30-35).

In reference to claim 13, Fukushima teaches wherein the ferroelectric material is BST ( Col.19, lines: 15-20).

In reference to claim 14, Fukushima teaches wherein the ferroelectric has Bi (Col.4, lines: 1-10, 3A-7A consists of Bi).

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In reference to claim 15, Fukushima teaches wherein the ferroelectric has SrBiTaO (Col.4, lines: 1-30).

In reference to claim 16, Fukushima teaches a device comprising:

A first electrode of a metal (Fig.24 (242));

A ferroelectric film above the first electrode (Fig.24 (243));

A second electrode of a metal formed above the ferroelectric film (Fig.24 (244));

At least one of the first and second electrode being of a base metal;

a transistor connected to the first or second electrode(Fig.22B (234 and 242); and

An intermediate layer of perovskite crystal formed between the electrode of the base metal and the ferroelectric film, materials of the intermediate layer being different from the materials of the first and second electrode and ferroelectric film(Abs., lines: 1-5).

### ***Response to Arguments***

Applicant's arguments filed 7/18/03 have been fully considered but they are not persuasive. Applicant argues that Fukushima fails to teach an intermediate layer between the electrode and the dielectric layer. However, this is not persuasive because Fukushima does teach to form an intermediate layer of  $W_{1-x}Re_xO_{3-\delta}$  between a bottom electrode of a base metal (242) and the BSTO film (243)- See Col.27, lines: 35-45).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

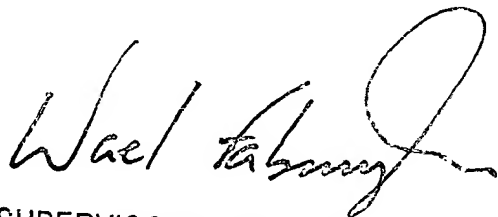
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

LMS

9/19/03

  
SUPERVISORY PRIMARY EXAMINER  
TECHNICAL CENTER